CONCEPTUAL DESIGN OF PROPOSED REEF BALL ARTIFICIAL REEF SUBMERGED BREAKWATER FOR TAMARIND BAY CONDOMINIUM

Figure 1. Proposed Reef Ball Artificial Reef Breakwater for Tamarind Bay

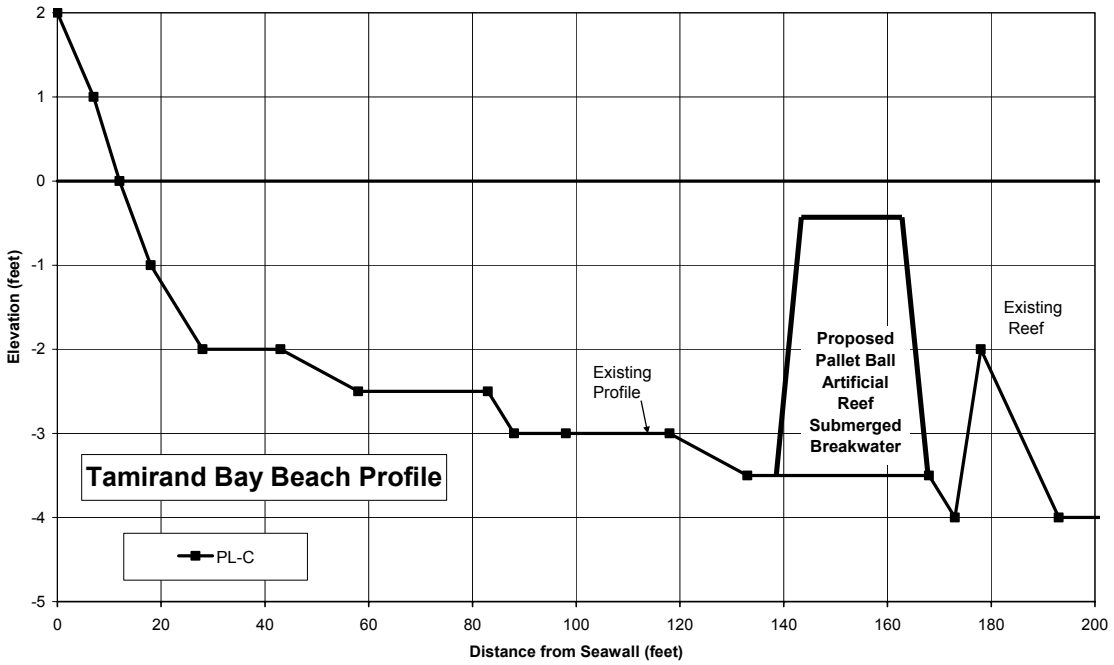

Figure 2. Profile View of Proposed Pallet Ball Artificial Reef

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Conceptual design for Tamarind Bay: Figure 1 shows the plan view and Figure 2 shows the cross-section for the proposed 200' long 25' wide breakwater using Pallet Balls for Tamarind Bay. Each of the Pallet Ball Reef Ball artificial reef units are 3' high with 4'-diameter bases, and each reef unit requires 1/3 to 1/2 cubic yards of concrete to fabricate. Approximately 350 Pallet Balls (50 units long and 7 units wide) would be required to construct the 200'x 25' breakwater (using staggered configuration of reef units). The length and width of the proposed breakwater can be reduced, but will result in less wave attenuation and hence less effectiveness. The use of Pallet Balls (instead of Ultra Balls as used for the Marriott) reduces the costs, due to a 50% or more reduction in concrete volume required for each reef unit, and easier handling due to the reduced size units. Furthermore, the smaller artificial reef units may be able to be transported to the site by land instead of by water, further reducing installation costs. Due to the smaller weights, anchoring of the units to the bottom is required.

The treatment of the entire south end of Seven Mile Beach would be an even more effective shoreline stabilization and cost-effective alternative. A preliminary conceptual design of such a layout is shown in Figure 3, but surveys of the offshore areas for the properties adjacent to Tamarind Bay would be required to confirm exact placement and appropriate reef unit sizes based on water depths and bottom type.

Figure 3. Proposed Reef Ball Breakwaters for Tamarind Bay & Adjoining Properties at South End of Seven Mile Beach (Dec. 2002 aerial courtesy DOE)